Gibson Assembly®
HiFi 1 Step and Ultra Kits

Efficient, high fidelity, seamless assembly and cloning of multiple fragments

The Gibson Assembly® method (1, 2) allows the insertion of single or multiple DNA fragments into a vector in a single round of cloning without the need for compatible restriction sites. Developed by Dr. Daniel Gibson and colleagues at the J. Craig Venter Institute and Synthetic Genomics, Inc., the Gibson Assembly® method has been cited in over one thousand publications.

The Gibson Assembly Method

To perform Gibson Assembly® cloning, dsDNA fragments with 20–40 bp overlapping ends are generated by PCR, prepared by restriction digestion, or synthesized (e.g., DNA Tiles™). The insert(s) and vector DNA are combined with Gibson Assembly® reagents and incubated. During incubation, the Gibson Assembly reagents mediate the generation of compatible ends, followed by annealing, extension, repair and ligation to create a fully assembled seamless DNA construct.

Highlights

- **High fidelity seamless DNA assembly**
- **Simple design and few manipulations**
- **Faster than conventional cloning methods**
- **Resulting constructs are double stranded and ready for multiple downstream applications**
- **Formulated for a high degree of sequence accuracy**

How it Works

During assembly, DNA fragments undergo:

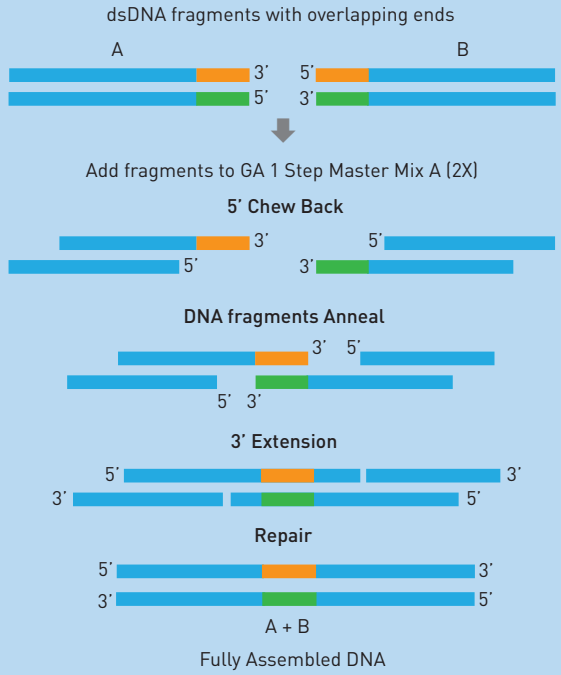
Chew Back

Annealing

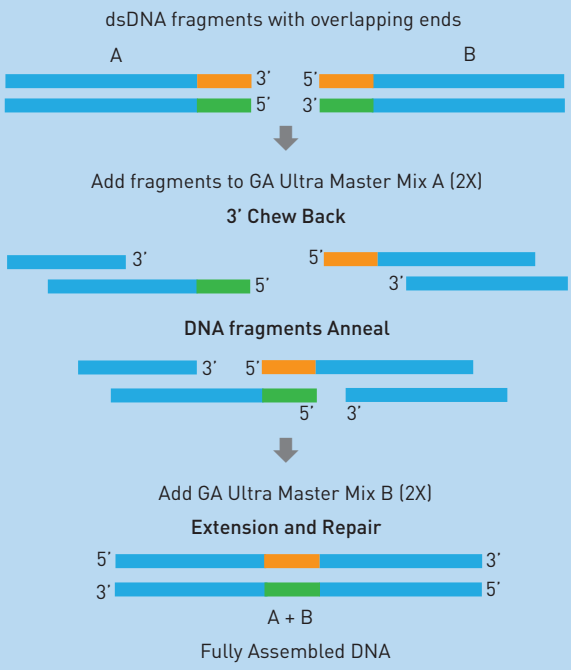
Extension

Repair

Overview of the Gibson Assembly® HiFi 1 Step Method



Overview of the Gibson Assembly® Ultra Method



VWR® We Enable Science

SGI DNA™ A Synthetic Genomics, Inc. Company

Applications

Multiple Insert Cloning- Clone multiple inserts without relying on the availability of restriction sites

Large Fragment Assemblies- Assemble gene clusters and genome-size fragments

Mutagenesis- Site-directed mutagenesis to make simultaneous changes in a single reaction

Synopsis

Robust, complex assemblies with 90–95% cloning efficiencies

Assembles without requiring restriction enzyme sites

Utilize any vector with simple design strategies

Fast, efficient, isothermal assemblies in 1 hour with the HiFi 1 Step Kit

Complex assemblies of up to 15 inserts simultaneously with the Ultra Kit

Key Features of Gibson Assembly® Kits

Gibson Assembly® HiFi 1 Step Kit	Gibson Assembly® Ultra Kit
Assemble **1–5** DNA Fragments	Assemble up to **15** DNA Fragments
Suitable for fragments from **500 bp – 32 kb**	Suitable for fragments from **100 bp – 100 kb**
Use multi-stage assembly to create constructs up to **100 kb**	Use multi-stage assembly to create constructs up to **1000 kb**
Single temperature assembly in **1 hour**	Multi-temperature assembly in **~80 minutes**
Cloning efficiency **>90%**	Cloning efficiency **~95%**

Product Ordering information	
Product	**VWR Cat. No.**
Gibson Assembly® HiFi 1 Step Starter Kit	SYGEGA1100-S
Gibson Assembly® HiFi 1 Step Kit, 10 rxn	SYGEGA1100-10
Gibson Assembly® HiFi 1 Step Kit , 50 rxn	SYGEGA1100-50
Gibson Assembly® HiFi 1 Step Master Mix (2X), 10 rxn	SYGEGA1100-10MM
Gibson Assembly® HiFi 1 Step Master Mix (2X), 50 rxn	SYGEGA1100-50MM
Gibson Assembly® Ultra Starter Kit	SYGEGA1200-S
Gibson Assembly® Ultra Kit, 10 rxn	SYGEGA1200-10
Gibson Assembly® Ultra Kit , 50 rxn	SYGEGA1200-50
Gibson Assembly® Ultra Master Mixes (2X), 10 rxn	SYGEGA1200-10MM
Gibson Assembly® Ultra Master Mixes (2X), 50 rxn	SYGEGA1200-50MM

References:

1. Gibson, D.G. et al. (2009) Nature Methods, 343-345
2. Gibson, D.G. et al. (2010) Nature Methods, 901-903

To place an order or request additional information please contact your local VWR Representative

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US Patent Nos. 7,776,532 and 8,435,736

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